CHAPTER 2
PURPOSE AND NEED

2.1 PURPOSE AND NEED WITHIN THE EIS PROCESS

In accordance with the *Federal Aviation Administration* (*FAA) Order 5050.4, Airport Environmental Handbook,* the Environmental Impact Statement (EIS) being prepared by the FAA on proposed improvements to the Gary/Chicago International Airport includes a section that addresses the purpose of a proposed Federal action and why it is needed. The identification of a Proposed Action's purpose and need is the primary foundation for the identification of reasonable alternatives to the action and the evaluation of the impacts of the alternatives. In this chapter of the EIS, additional background information is provided along with information to overview the purpose and need for the Proposed Action and to describe the requested Federal action.

2.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

The Gary/Chicago Airport Authority in late 2001 completed an airport master plan update that resulted in the 2001 Airport Master Plan and the 2001 Airport Layout Plan (attached as **Exhibit 2-1**, with its latest revision dated 2004) for Gary/Chicago International Airport. The FAA accepted the master plan update, and then conditionally approved the Airport Layout Plan in 2001. These documents evaluated the existing facilities, conditions and activity at Gary/Chicago International Airport, sought ways to address FAA's Runway Safety Area (RSA) concerns, and identified selected projects for review in the EIS being prepared by the FAA. The projects, recommended as near-term improvements, are seen by the Gary/Chicago Airport Authority as being needed to improve safety and operating efficiency to accommodate the existing aviation demands and to preserve the option for potential future growth as identified in the 2001 Airport Master Plan.

The purpose and need for the improvements proposed in the near-term by the 2001 Airport Master Plan and shown on the 2001 Airport Layout Plan, are being modified based on the findings of the 2003 Gary/Chicago Airport Rail Relocation Study and the application of new FAA Terminal Instrument Procedures (TERPS) criteria for Instrument Flight Rules (IFR) departure procedures, which were published/released after the 2001 Airport Master Plan was finished. The purpose and need for the improvements proposed later in this chapter for the near-term were discussed and refined during the EIS scoping process. This process is summarized in the December 2001 Gary/Chicago Airport Environmental Scoping Document. The purpose and need and the resulting improvements to address the needs identified have been further modified slightly since the scoping meeting as a result of that meeting and comments received subsequently. These comments indicated that the Proposed Action should take into account the effects of the post September 11, 2001 economy. Each of these issues could have an effect on the EIS preparation and are incorporated by reference in this EIS. The railroad relocation alternatives being studied in the EIS process refined the purpose and need and will require the modification of the 2001 Airport Layout

Plan to include the preferred railroad relocation alternative. It will also be submitted to the FAA for airspace analysis. This airport layout plan revision and airspace analysis will also take into account FAA's recent revision in TERPS criteria for IFR departure procedures. The need for the proposed projects will likely continue to be based upon the following summarized points that are highlighted in bold and are followed with detailed descriptions.

The following sub-sections (Sections 2.2.1 Need to Bring the Runway 12-30 into Conformance With Current FAA Standards, 2.2.2 Need to Provide Additional Runway Length, 2.2.3 Need for Expansion of Existing Terminal and 2.2.4 Need for Acquiring and/or Reserving Sites for New Passenger Terminal and Air Cargo Facility) describe each of the needs for the Gary/Chicago International Airport Development Program.

2.2.1 Need to Bring the Runway 12-30 into Conformance with Current FAA Standards

The existing Runway 12-30 does not meet the FAA's recent national mandate for runway safety areas to comply with the standards outlined in FAA Advisory Circular 150-5300-13. The purpose of the Proposed Action is to comply with current safety standards on existing Runway 12-30. There is a need to improve the existing runway to increase the operating margin of safety and comply with FAA standards.

2.2.1.1 Airfield Shortcomings

Dimensional standards pertaining to runways and runway-related separations are essential to provide adequate clearance from potential hazards that could impact the routine movement of aircraft at the Gary/Chicago International Airport. These standards relate to dimensions for runway width, obstacle free zones, and runway safety areas. Also addressed are the dimensional criteria for shoulders and blast pads.

Runways

The existing airfield configuration at Gary/Chicago International Airport consists of two active runways. Runway 12-30 is the primary runway, with a length of 7,000 feet and a width of 150 feet. The northwest end of Runway 12-30 is marked for a displaced threshold of 715 feet due primarily to the location of an elevated railroad track (landing threshold 715 feet from physical end of runway pavement due to railroad obstruction). This results in a landing length of 6,285 feet for aircraft landing on Runway 12. Runway 2-20 serves as a crosswind runway used primarily by light general aviation (GA) aircraft; it has a length of 3,603 feet and a width of 100 feet. There are no displaced thresholds on Runway 2-20.

Runway Safety Areas

The *runway safety area* (RSA) enhances safety by providing cleared areas for airplanes that undershoot, over-run, or veer off the runway. They also provide improved accessibility for fire-fighting and rescue equipment during emergencies. RSAs should be graded and free of any structures, traverse ways, roads, railroads, and parking areas. Navigational aids (navaids) with frangible mounts are permitted due to their essential functions.

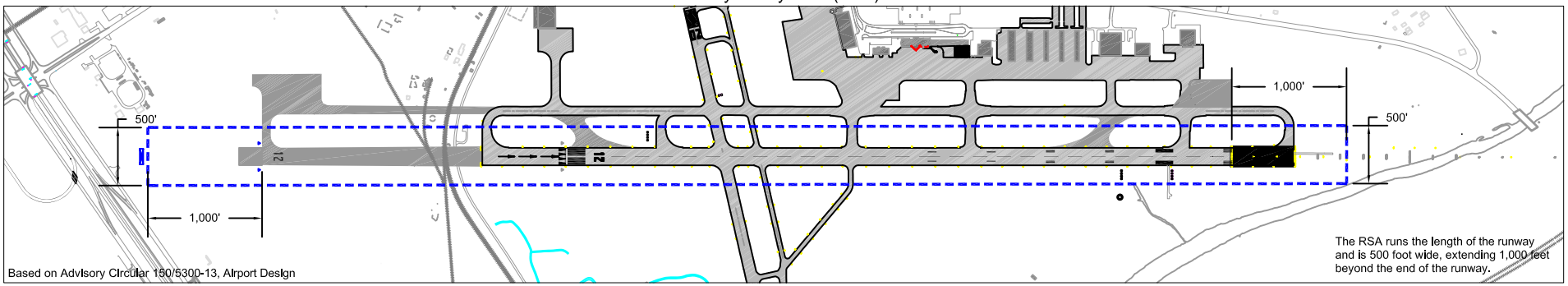
The standard RSA for runways serving Airport Reference Code (ARC) C-III aircraft, the critical design aircraft for Gary/Chicago International Airport as discussed in Chapter 1, Introduction, of this EIS, is 500 feet wide along the entire runway length, and extends 1,000 feet beyond each runway end. In its September 8, 2000 Runway Safety Area determination, the FAA stated that Runway 12-30 did not meet the current standards for runway safety areas contained in FAA *Advisory Circular 150/5300-13*.[1] FAA *Advisory Circular (AC) 150/5300-13*, *Airport Design*, defines a Runway Safety Area as a cleared and graded area capable of supporting snow removal equipment, Aircraft Rescue and Fire Fighting equipment, and the passage of an aircraft without causing structural damage. The advisory circular further states that the area should contain no objects unless they are essential to airport operations; if these necessary objects are greater than three inches in height, they need to be mounted on a frangible base.[2] **Exhibit 2-2** depicts the RSA and other obstruction free areas (described below) for Runway 12-30 at Gary/Chicago International Airport.

A *runway object free area* (ROFA) is an area on the ground that is centered on the runway centerline. The ROFA enhances aircraft operational safety by being clear of objects, except those needed to be located in the ROFA for air navigation or aircraft ground-maneuvering purposes.[3] The standard ROFA for ARC C-III is 800 feet wide along the entire runway length, and extends 1,000 feet beyond each runway end. Runway 12-30 does not meet this design standard due to an object, the EJ&E Railway, that is within the ROFA. The Grand Calumet River, although it is within the ROFA limits is not a violation of the ROFA as it is below the critical ROFA elevation.

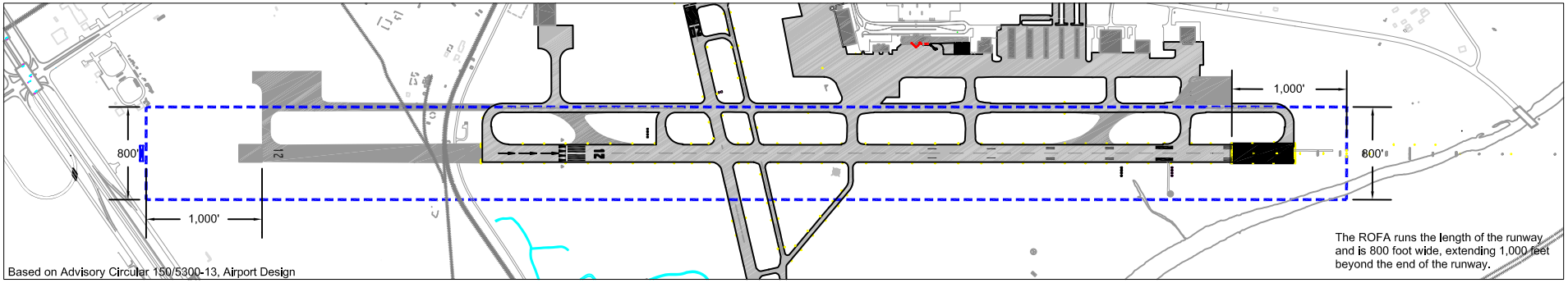
A *runway protection zone* (RPZ) is defined by the FAA as an area off the runway end managed to enhance the protection of people and property on the ground. This is achieved through airport owner control over RPZs. Such control includes clearing RPZ area (and maintaining them clear)

1 Federal Aviation Administration. *Runway Safety Area (RSA) Determination, Runway 12/30, Gary/Chicago Airport.* September 8, 2000.
2 Federal Aviation Administration. *FAA Advisory Circular 150/5300-13, Airport Design, Chapter 3, Paragraph 305.a.(3) and (4)*. October 1, 2002.
3 Federal Aviation Administration. *FAA Advisory Circular 150/5300-13, Airport Design, Chapter 1, Paragraph 2.* October 1, 2002.

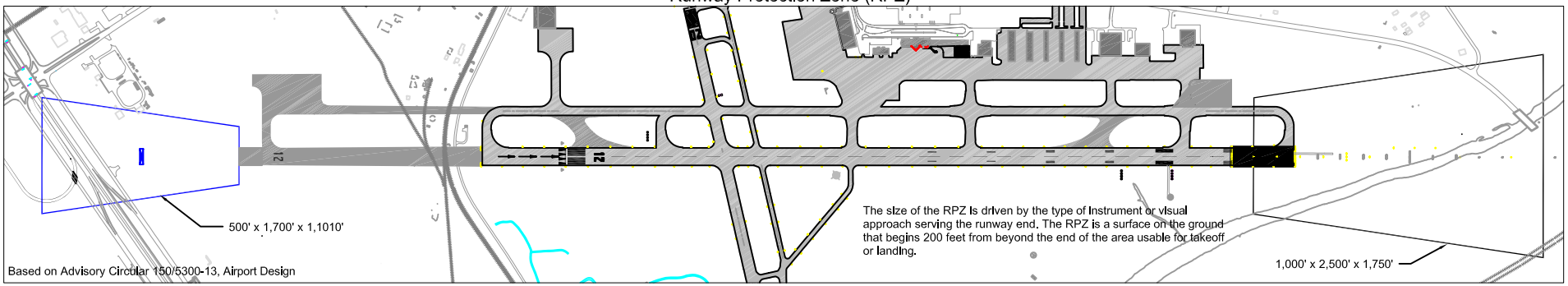
Runway Safety Area (RSA)



Runway Object Free Area (ROFA)



Runway Protection Zone (RPZ)



North

Not to Scale

EXHIBIT 2-2
Clear Areas Required by
Federal Design Standards
Runway 12-30

April 8, 2004

of incompatible objects and activities. Control is preferably exercised through the acquisition of sufficient property interest in the RPZ.[4]

The RSA and ROFA for Runway 12-30 can be brought up to FAA design standards by removing objects within these areas or establishing declared distances for the runways to avoid conflicts with these objects. The September 8, 2000 FAA finding identified the relocation of the railroad as key for a resolution of the runway safety area issues while providing the needed runway length for the existing users of the facility. In the FAA's RSA determination, it was noted that reducing the primary runway length as the sole resolution to the RSA issues would adversely impact some existing corporate users, the scheduled air carrier[5] and the air charter operator.[6]

The Grand Calumet River traverses the Runway 30 safety area. The location of this river in the safety area is not consistent with FAA standards. According to the FAA definition, a safety area should be capable of supporting the occasional passage of an aircraft without causing structural damage.[7] To remedy this non-standard safety area, the ALP shows a displacement of the Runway 30 threshold approximately 546 feet to the northwest and implementation of declared distances so the river is outside of the RSA.

As the usable runway end moves on a runway, the RPZ also moves. The Gary/Chicago Airport Authority is seeking positive control of the future RPZ locations, to assure compatible uses within this area.

Declared Distances

Declared distances are used to accurately depict the takeoff and landing distances available for aircraft. The distances are determined by the runway length, and are adjusted according to displaced thresholds, clearways, runway safety areas, and runway object free areas. The four declared distances calculated are takeoff run available (TORA), takeoff distance available (TODA), accelerate/stop distance available (ASDA), and landing distance available (LDA). Gary/Chicago International Airport does not currently employ any official declared distances; however, because of the obstructions created by the EJ&E Railway on the northwest end of the runway, Runway 12 has a 715-foot displaced threshold. The displacement of the Runway 12 threshold does not provide a runway safety area that meets FAA requirements. The relocation of the EJ&E Railway would allow for both the removal of the displaced threshold on Runway 12 and for the

[4] Federal Aviation Administration. *FAA Advisory Circular 150/5300-13, Airport Design, Chapter 2, Paragraph 212.* October 1, 2002.
[5] Carrier operating at time of determination has suspended service.
[6] Federal Aviation Administration. *Runway Safety Area (RSA) Determination, Runway 12/30, Gary/Chicago Airport.* September 8, 2000.
[7] Federal Aviation Administration. *FAA Advisory Circular 150/5300-13, Airport Design, Chapter 3, Paragraph 305.a.(3).* October 1, 2002.

development of a runway safety area that meets the current FAA standards. This is addressed in further detail later in this chapter.

2.2.1.2 Improvements to Conform Existing Runway 12-30 to Current FAA Standards

Runway 12-30 is currently 7,000 feet long. In its September 8, 2000 Runway Safety Area determination, the FAA stated that Runway 12-30 did not meet the current standards for runway safety areas contained in FAA *Advisory Circular 150/5300-13*.[8] It was determined that it may be feasible to improve the runway so that the RSA will meet current standards; however, the FAA determination identified the relocation of the railroad as key for a resolution of the runway safety area issues while providing the needed runway length for the existing users of the facility. In the FAA's RSA determination, it was noted that reducing the primary runway length to resolve the RSA issues would adversely impact some existing corporate users, the scheduled air carrier[9] and the air charter operator.[10] It was also noted that the air carrier would have to reduce the number of passengers being carried if the runway length was shortened.[11] In addition to the runway safety area issue, Runway 12 has a 715-foot displaced landing threshold because of obstructions, namely the EJ&E Railway. Also, the Runway 30 safety area is non-standard as the Grand Calumet River traverses it. In order to increase the margin of safety for the existing runway, several specific safety improvements are recommended.

2.2.1.2.1 Acquire Land Northwest of Gary/Chicago International Airport

The 2001 Airport Layout Plan identifies an area northwest of Runway 12-30 for potential acquisition by the Gary/Chicago Airport Authority. Sufficient land is needed both to allow for the relocation of the railroad and development of a standard runway safety area and clear approach surfaces. Control of the runway protection zone is also desired. Land acquisition of approximately 270 acres (owned by 17 landowners) is proposed in order to accomplish these purposes. The area is primarily undeveloped having supported past industrial and material storage activities. This land acquisition area does not include any homes. The land acquisition needs for all the proposed improvements are summarized later in this chapter.

[8] Federal Aviation Administration. *Runway Safety Area (RSA) Determination, Runway 12/30, Gary/Chicago Airport.* September 8, 2000.
[9] Carrier operating at time of determination has suspended service.
[10] Casino Express provides periodic charter service to and from Elko, Nevada, using Boeing 737 aircraft
[11] Federal Aviation Administration. *Runway Safety Area (RSA) Determination, Runway 12/30, Gary/Chicago Airport.* September 8, 2000.

2.2.1.2.2 Relocate EJ&E Railway

To increase the margin of safety for the existing Runway 12-30, the EJ&E Railway tracks need to be relocated. The railroad relocation has been identified as needed since the 1970s, when the runway was extended to its present length. The following description of the railroad has been excerpted from the FAA's Runway Safety Area Determination, dated September 8, 2000:

> *"The EJ&E railroad tracks lie atop an earthen railroad embankment, which curves around the end of Runway 12. On centerline the center of the tracks is 320 feet from the runway end. At 250 feet right of the extended centerline the center of the tracks is 260 feet from the runway end. At 250 feet left of the extended centerline the center of the tracks is 320 feet from the runway end. The railroad tracks are approximately 17 feet higher than the elevation of the runway end*
>
> *An additional track begins at the runway centerline 330 feet from the runway end and proceeds right of (south) and perpendicular to the extended runway centerline*
>
> *At 250 feet right of the runway centerline and 330 feet from the runway end an additional railroad track begins which proceeds due north from that point. It crosses the extended runway centerline at 440 feet from the runway end. Then, beginning on the extended runway centerline at 440 feet from the runway end a rail spur curves northeast. The airport property line stops at the base of the railroad embankment. All of the above railroad tracks are on property not owned by the airport."*[12]

The Gary/Chicago Airport Authority has retained the consulting firm TranSystems to conduct an analysis of the best alternative for relocating the railroad tracks. The planning process includes all stakeholders, including railroad users and owners, with direction to consider the long-range impacts. Relocation of the railroad tracks (including acquisition of the current railroad right-of-way) would allow the development of a standard runway safety area off the end of Runway 12, with a width of 500 feet and a length of 1,000 feet beyond the runway end. Further, with the removal of this primary obstruction (as well as other miscellaneous obstructions), the displaced threshold for Runway 12 would no longer be required.

[12] Federal Aviation Administration. *Runway Safety Area (RSA) Determination, Runway 12/30, Gary/Chicago Airport.* September 8, 2000.

Exhibit 2-3 shows the preferred route for the relocation of the EJ&E Railway, Route 1D. In addition, an interim phase for the relocation of the preferred route has been identified, Route 1E (also shown in Exhibit 2-3). This EIS has examined both the interim phase, Route 1E, and the preferred route, Route 1D, so that the Gary/Chicago Airport Authority may proceed with the railroad's phased relocation, as funding allows. Under both Route 1D or 1E, the area off the northwest end of the existing Runway 12-30 will be cleared of obstructions and will allow for the improvement of the RSA and ROFA in compliance with the FAA design standards.

2.2.1.2.3 Modifications to Ongoing Cleanup Activities for Compatibility

Two sites in the study area that are currently undergoing cleanup activity will require modifications to assure compatibility of ongoing cleanup operations with the Proposed Action. These sites are described further in Chapter 4, Affected Environment, of this EIS.

The Conservation Chemical Company Site, located immediately off the northwest end of Runway 12-30 and owned by the Gary/Chicago Airport Authority, has five extraction wells to remove contaminated residues from the site. These wells can be recessed and covered so that the extraction process may continue as required (expected to continue through at least 2006 and be compatible with the proposed extended runway.

The Midco II superfund site is located across Industrial Highway from the airport and contaminated groundwater is treated and removed from this site via a pipeline that parallels the existing EJ&E Railway line running to the Midco I superfund site, located south of the airport. Since U.S. EPA expects this remediation program to last thirty years, the present location of this pipeline, which transects the proposed runway extension, appropriate measures based on final design will be undertaken to protect the Midco pipeline both during construction and after the runway is extended.

2.2.1.2.4 Relocate Airside Perimeter Roadway

A perimeter roadway runs across the end of Runway 12 in closer proximity to the runway than meets current FAA safety standards. The existing railroad location and area that is owned by the Gary/Chicago Airport Authority limit the location of the perimeter roadway. Currently, the perimeter roadway provides access to the air traffic control tower and FAA antennae facility, located on the south side of the airfield. As part of the relocation of the railroad and acquisition of additional land, the perimeter roadway is proposed to be relocated in accordance with FAA criteria. If and as implemented, the extension of Runway 12-30 approximately 546 feet to the northwest as part of the runway safety area improvements requires the existing airside perimeter roadway (restricted access non-public roadway) to be relocated

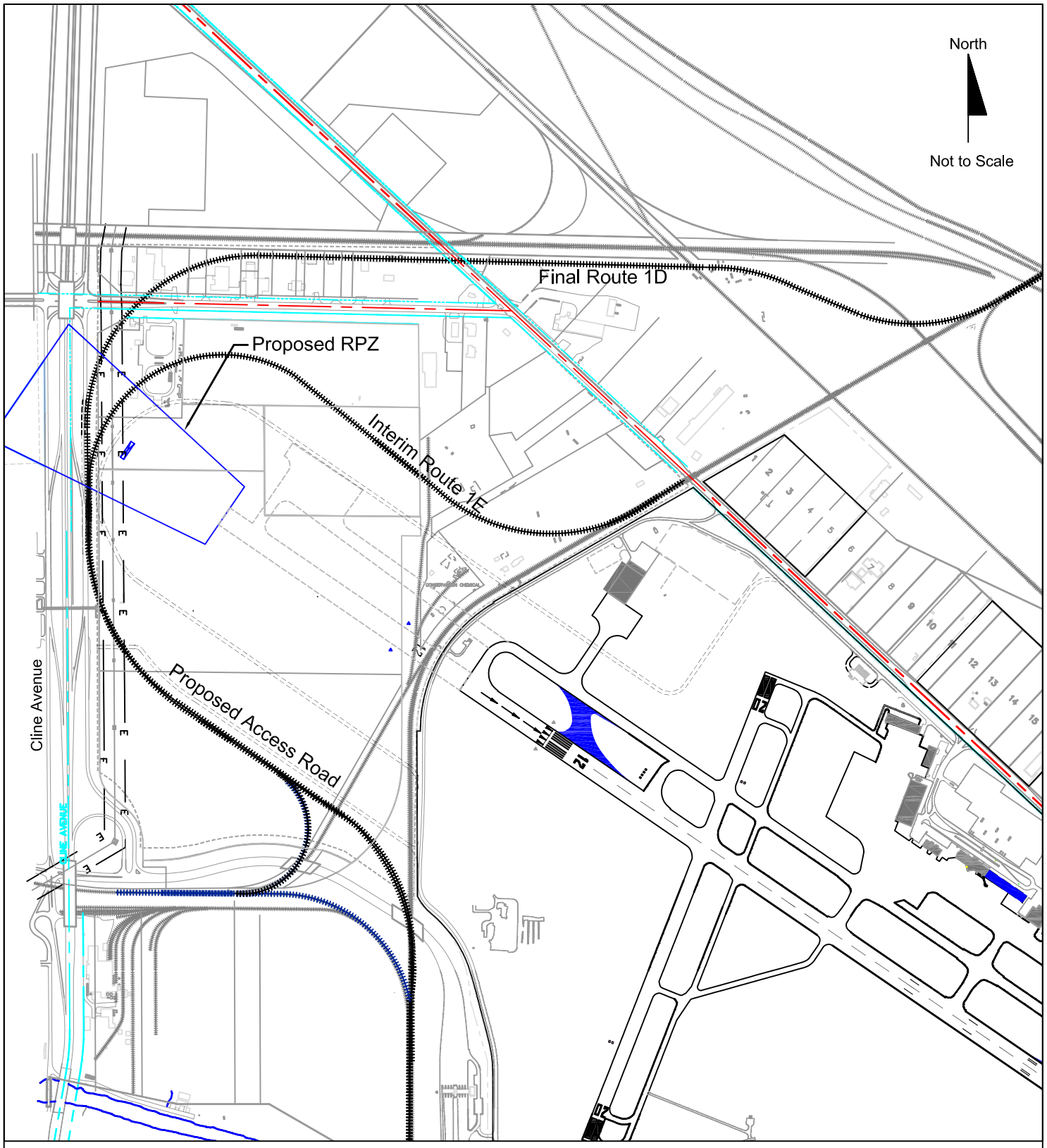


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EXHIBIT 2-3
Rail Relocation Routes
1D and 1E

April 8, 2004

east of the maintenance facility then turning west to parallel Runway 12-30 to Cline Avenue. The roadway would then run parallel to Cline Avenue (approximately 1,100 feet beyond the proposed runway end) to north of the proposed cargo area, and it would then meet the existing roadway again. Several gate access points for the airside roadway would need to be determined during the design phase of the project.

With the refinement of the preferred route for the EJ&E Railway, an additional access point has been added to the perimeter road system from the Cline Avenue frontage road to improve the access from southwest of the airport to the construction site, proposed cargo area and the future military area. This access road is shown in Exhibit 2-3. This access road crosses the new EJ&E Railway with a grade crossing in close proximity to the Cline Avenue frontage road from which access is provided. The EJ&E Railway has agreed to this crossing due to the limited type of public activity that it would attract and in recognition that sufficient room still exists to allow for the holding of trains in this area without blocking the crossing in order to meet the operational requirements of the EJ&E Railway. This access road becomes a part of the airport's perimeter roadway system and will be especially needed in the future to keep construction trucks from having to go airside across Boeing's taxiway and numerous security gates. It will also be useful to the Army National Guard for access to their proposed facilities.

There is also an interest in extending the internal perimeter road system on the south end to allow better access for the FAA to the navaids on that end of the runway. The internal access road system on the south end is not "ripe" for a decision. However, it will be environmentally assessed outside this environmental review when it is determined needed.

2.2.1.2.5 Bury Power Line

A transmission power line crosses the area beyond the end of the existing Runway 12. This line should be buried in order to meet the clear approach requirements and new TERPS criteria for IFR departure requirements for Runway 12 when it is extended in order to bring Runway 12-30 into compliance with FAA runway safety area requirements. Prior to burying the transmission power line, the Gary/Chicago Airport Authority will work closely with Northern Indiana Public Service Company to confirm whether this power line is needed in service or can be decommissioned instead of burial. The Dean Mitchell Power Plant that is served by this transmission line is currently out of operation; however, NIPSCO has indicated that it plans to resume its operations in the future, while the City of Gary has expressed an interest in the permanent removal of this power plant.

The new 40:1 IFR departure surface begins at the runway end and at the runway end elevation. This is a shallow surface and the NIPSCO power lines will penetrate it. This would affect the runway with the proposed 546-foot extension described in this EIS as well as the future 8,900-foot runway length proposed on the 2001 Airport Layout Plan.

There is a natural gas pipeline that runs within the power line corridor. It is anticipated that it will remain in place. Appropriate design considerations will be given to protecting the pipeline and buried power line during any construction that will cross this easement corridor, shown in **Exhibit 2-4**.

2.2.1.2.6 Extend Runway 12 to maintain existing 7,000-foot by 150-foot runway

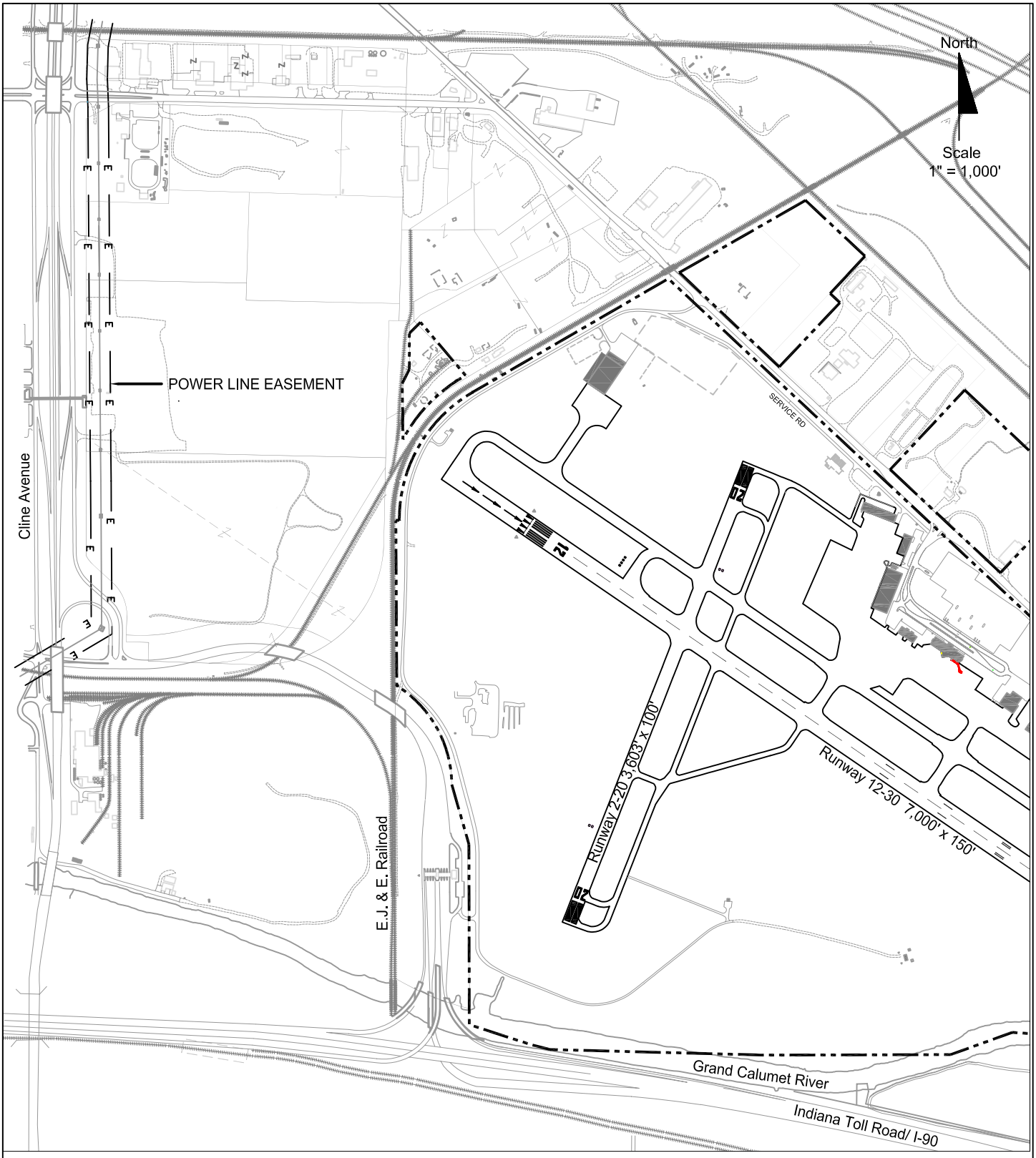
Runway 12-30 is currently 7,000 feet long. As previously noted, in order to improve the Runway 30 safety area, it is proposed to extend Runway 12 approximately 546 feet to the northwest, after acquisition of the necessary property and relocation of the railroad tracks. This would allow Runway 12-30 to be shifted to the northwest and provide a FAA standard runway safety area beyond the Runway 12 end as well as provide a FAA standard runway safety area on the Runway 30 end without reducing the existing 7,000 feet of length on the primary runway.

2.2.1.2.7 Relocate Runway 12-30 Navaids

Although Runway 12 has only a visual approach, Runway 30 is served by a Category I precision instrument landing system (ILS) approach with associated marker beacons and minimums of 200 feet and ½-mile visibility, and a medium intensity approach lighting system with runway alignment indicator lights (MALSR). Additionally, the Gary/Chicago Airport Authority owns and operates additional navigational aids (PAPI-4 and REIL on Runway 12; PAPI-4 on Runway 30), which enhance a pilot's visual cues for the runway.

The extension of Runway 12-30 to meet current FAA standards requires the Runway 30 localizer (located off the end of Runway 12) be relocated from its existing position 130 feet from the runway end to a location approximately 2,770 feet to the northwest. This would result in the relocated localizer being 1,100 feet beyond the ultimate Runway 12 end or 100 feet beyond the ultimate runway safety area end. Using declared distances, the 2001 ALP calls for a displacement of the Runway 30 landing threshold (addressed further below) to correct for runway safety area and runway object free area standards.

The extension of Runway 12 and displacement of the Runway 30 landing threshold to the northwest requires the approach lighting system (MALSR) and glide slope on Runway 30 to also be relocated. The MALSR would be relocated to serve the Runway 30 displaced threshold. To accomplish this, some of the relocated MALSR lights would need to be



Source: Aerofinity, 2004 from Gary/Chicago Mater Plan Update, November 2001, HNTB

Airport Property Line

E Easement

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EXHIBIT 2-4
Power Line Easement Along
Cline Avenue

April 8, 2004

installed in pavement. The glide slope would be relocated to serve the Runway 30 displaced threshold. Finally, additional navigational aids -- in this case, the PAPI-4 serving Runway 30 -- would also require relocation at the time the runway threshold is moved. Also, the PAPI-4 and REILs on Runway 12 end would need to be relocated as part of the approximately 546-foot extension to Runway 12 as part of the safety area improvement and rail relocation project.

2.2.1.2.8 Improve Runway Safety Area for Runway 12

The relocation of the railroad allows the runway safety area for Runway 12 to be cleared of obstacles or obstructions and otherwise improved to meet FAA criteria for a standard runway safety area. Specific grading and compaction requirements will need to be met for the area off the end of Runway 12 after it is extended approximately 546 feet to maintain 7,000 feet on the primary runway while upgrading the Runway 30 safety area.

2.2.1.2.9 Relocate Runway 12 Threshold

The completion of the railroad relocation and improvements to the runway safety area, allow the landing threshold for Runway 12 to be moved to the new physical northwest end of the runway that would be extended approximately 546 feet (thereby eliminating the existing 715-foot displacement of the Runway 12 threshold).

2.2.1.2.10 Displace Runway 30 Threshold

At the time of the approximately 546-foot extension to Runway 12, to bring Runway 12-30 into runway safety area compliance, declared distances criteria would be applied to the runway to provide an adequate runway safety area on Runway 30. This would result in displacing the Runway 30 threshold approximately 546 feet to the northwest, which would make available 7,000 feet of runway length[13] for landing on Runway 12 and 30 and for accelerate/stop distance on Runway 12. The associated navaids relocations to accommodate the Runway 30 displaced threshold are discussed earlier in this chapter.

2.2.1.2.11 Extend Taxiway A

To support the proposed extension of Runway 12 by approximately 546-feet, Taxiway A would need to be extended to the new runway end. The extended parallel taxiway would be constructed with a 400-foot runway centerline to taxiway centerline separation, although the FAA has granted a modification of design standards for the existing portion of Taxiway A to remain separated by 392 feet runway centerline to taxiway centerline.

[13] Federal Aviation Administration, Airport District Office – Pené A. Beversdorf, Assistant Manager; Letter to Paul Karas, Administrator, Gary/Chicago Airport, September 24, 2001.

2.2.1.2.12 Acquire Land Southeast of Gary/Chicago International Airport

The FAA recommends that airports have positive control over the land under the runway protection zones off both ends of the runway. Southeast of Runway 12-30, the Gary/Chicago Airport Authority's control of land is limited in some cases to an avigation easement (easement providing air rights over the parcel). There are homes located within the existing runway protection zone and within the ultimate runway protection zone based on providing an FAA standard runway safety area on Runway 30. Current FAA design standards provide that residential use is a prohibited land use in an RPZ.[14] To increase the margin of safety and to ensure compatibility (not to extend the runway), the Gary/Chicago International Airport proposes to acquire these homes as opportunity and funding allow. The area to be acquired includes 47 landowners with 42 homes and one business, totaling approximately 20 acres (area shown in **Exhibit 2-5**).

2.2.2 Need to Provide Additional Runway Length

The current and future air carrier and cargo operators need more than a full 7000-foot runway to operate efficiently and safely with the appropriate load factors and to the destinations desired. The purpose of the Proposed Action is to provide takeoff and landing capabilities for cost-effective travel by Airport Reference Code C-III aircraft within a 1,500-mile range from the Gary/Chicago International Airport. There is a need to provide the runway length to meet the requirements of current and future users especially in warm weather.

As mentioned in Chapter 1, Introduction, of this EIS, the FAA specifies that a critical aircraft or class of aircraft must be established for an airport. FAA design criteria are categorized by Airport Reference Codes (ARC), which takes into account the aircraft's approach speed and wingspan, linking airport dimensional standards and separation criteria to the physical characteristics of aircraft. The ARC for Gary/Chicago International Airport is C-III, based on the current, conditionally approved 2001 Airport Layout Plan (ALP). Four aircraft that are users of Gary/Chicago International Airport have been identified as representative of ARC C-III aircraft. They are: the MD-80, B737, DC-9 and B727. The B727-200 aircraft is the largest of these aircraft and still represents the most-demanding ARC C-III user of Gary/Chicago International Airport. Accordingly, the 2001 Airport Layout Plan identifies the B727-200 as the critical aircraft.

[14] Federal Aviation Administration. *FAA Advisory Circular 150/5300-13, Airport Design,* Paragraph 212. October 1, 2002.

Aerofinity, 2004

Acquisition Areas

Note:
Acquisition area contains approximately 20 acres with 47 landowners (42 homes and 1 business).

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Exhibit 2-5
Southeast Runway Protection Zone
Land Acquisition Area

April 8, 2004

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2.2.2.1 Runway Length Shortcomings

As a part of the 2001 Airport Master Plan process, runway length requirements were determined based on the current and forecast fleet of aircraft expected to make substantial use of the Gary/Chicago International Airport. "Substantial use means either 500 or more annual itinerant operations or scheduled commercial service."[15] Charter, corporate jet, general aviation and on-demand cargo operators have been the primary users at the Gary/Chicago International Airport during the last decade. Flight records have been examined and coordination has been conducted with airport management to determine the frequency of operations by the critical aircraft at the Gary/Chicago International Airport. Substantial use by ARC C-III aircraft occurs through a variety of airport users. Southeast Airlines has commenced service at the airport using MD-80 aircraft, with eight weekly operations in place and plans announced for those levels to increase to 22 weekly operations by mid-year. Casino Express provides periodic charter service to and from Elko, Nevada using Boeing 737 aircraft. Casino Express averages 20 annual operations. The Boeing Company typically averages one to two flights per week with based corporate BBJ, conducting 100 to 200 annual operations.

The most frequent on-demand charter operator at Gary/Chicago International Airport is USA Jet Airlines (JUS). The largest aircraft operated by JUS at Gary/Chicago International Airport are DC-9-30s. DC-9s conduct 400 to 500 annual operations at the airport. Other on-demand air cargo operators that have used Gary/Chicago International Airport include Northern Air Cargo Company (NAC), Miami Air International (BSK) and Murray Aviation (MUA). These operators fly 727s and DC-8 aircraft. They conduct 20-40 annual operations per year.

Although the scheduled charter commercial service operations of Southeast Airlines could in and of themselves substantiate the ARC C-III critical aircraft requirements, the Gary/Chicago Airport Authority continues to use the 2001 Airport Master Plan forecasts and runway length analysis as a primary basis for the Proposed Action. It is important to recognize that the airport's long-term success will not be based upon any single operator, but rather the combined activity from scheduled service operations combined with the charter, BBJ and on-demand cargo operators, which still operate at least 500 annual itinerant operations by 727, 737, DC-9 and DC-8 aircraft independently from other scheduled service carriers. The 2001 Airport Master Plan assumptions are considered representative of the Southeast Airline activity that is now in place, as well as other airlines proposing to use the airport.

The nationwide post September 11, 2001 trends were also reviewed with regard to local trends and issues. The aircraft anticipated to serve Gary/Chicago International Airport are consistent with the national trend mentioned earlier of those aircraft the mainline carriers are currently removing

[15] Federal Aviation Administration. *FAA Executive Order 5090.3C, Field Formulation of the National Plan of Integrated Airport Systems.* December 4, 2000.

from service. Due to their low-cost and market availability, the earlier generation Stage 3 compliant, single-aisle, narrow-body aircraft are being operated by start-up airlines on point-to-point routes. The charter companies currently serving Gary/Chicago International Airport, and those carriers that are currently in discussion with the airport, operate aircraft such as the MD-88, 737-200, and 727-200. The routes these aircraft serve, and are anticipated to serve, include Las Vegas, Orlando and Raleigh-Durham. These destinations are consistent with previous service provided by carriers at Gary/Chicago International Airport and market analysis conducted by the airport. The destinations now served by Southeast Airlines scheduled charter service include two Florida destinations, Orlando and St. Petersburg.

Based on runway length analysis and preliminary discussions with these airlines, the current runway length of 7,000 feet is insufficient to safely and operate these types of aircraft to the destinations mentioned above with an adequate load factor. For example, a Boeing 727-200 operating from GYY to MCO (1,000 nautical mile stage length) would require approximately 8,800 feet of runway during takeoff. Similarly, a 737-200 operating from Gary/Chicago International Airport to LAS (1,500 nautical mile stage length) would require a runway length of 8,900 feet. Both of these examples assume a 90% load factor.

In addition to the limitations presented by the 7,000 feet runway length, the presence of the railroad embankment further limits the available runway length and consequently the maximum takeoff weight of the aircraft. Prior to any flight, pilots must calculate the minimum climb gradient in the event an engine loses power during the most critical phase of takeoff. This most critical phase is defined as the point during takeoff when the aircraft cannot be stopped on the runway and the pilot must continue with the takeoff with one engine inoperative. The FAA prescribes the minimum climb gradient in Federal Aviation Regulation (FAR) Part 121. The climb gradient varies dependent on whether the aircraft has two, three, or four engines. When calculating the minimum climb gradient the most critical aircraft is the two engine aircraft.

Presently, the location of the EJ&E Railway penetrates the minimum climb gradient for a two engine aircraft with one-engine inoperative during takeoff. As a result of this, air carriers operating twin-engine jet aircraft (like the 737 and MD-80) would have to significantly reduce payload in order to maintain an adequate climb gradient during takeoff. In effect, this reduces the utility of the runway and has a similar impact as reducing the effective runway length.

In summary, there are start-up carriers entering the air carrier market that are using narrow-body aircraft that the mainline carriers have been removing from their fleets. Most of these aircraft are earlier generation aircraft that are Stage 3 compliant but are not as efficient as newer generation aircraft. As a result, these aircraft require more runway length during takeoff than later generation aircraft of the same type.

With the current runway configuration and the presence of the EJ&E Railway, narrow-body aircraft experience further payload capacity constraints. In order for air carrier aircraft to maintain the FAR Part 121 minimum climb gradient in order to clear the rail line in the event of an engine failure, the aircraft must restrict its payload capacity. This factor significantly limits the potential of GYY to attract and sustain scheduled air passenger and cargo service.

The current runway length of 7,000 feet is insufficient to accommodate the demands of various aircraft types (larger corporate jet aircraft, larger cargo jet aircraft, and larger commercial passenger jet aircraft such as those used by Pan Am, Southeast Airlines or other similar airline operations) based upon the runway length analysis program used during the 2001 Airport Master Plan process, FAA Airport Design Program (v4.2) and the review of post September 11, 2001 industry trends. Although the existing runway length is capable of accommodating the B727-200 and other C-III aircraft on short-haul routes and/or at lower takeoff weights, the required runway length for a given aircraft on a given day is determined by a combination of factors, including specific aircraft variant type, temperature, engine type, and takeoff weight. Accordingly, there are many instances when a runway length of 7,000 feet at Gary/Chicago International Airport would limit the load for existing and forecast users of the facility.

The 2001 Airport Master Plan identified the existing runway length as inadequate to support many forecast aircraft operations under expected conditions at Gary/Chicago International Airport.[16] The 2001 Airport Master Plan identified a preferred runway extension length of 1,900 feet (1,354 feet beyond the 546 feet needed to conform to FAA standards) on the primary Runway 12-30, bringing the total runway length to 8,900 feet. The FAA conditionally approved 2001 Airport Layout Plan identifies the need for the relocation of the EJ&E Railway, the extension of the primary runway to the northwest to 8,900 feet, the displacement of the Runway 30 threshold and the implementation of declared distances standards (introduced earlier in this chapter). As shown in **Exhibit 2-6** this results in 8,354 feet of landing distance in both directions, 8,354 feet of accelerate/stop distance on Runway 12 and 8,900 feet of runway length for departures on Runways 12 and 30.

[16] Gary/Chicago Airport Authority, prepared by HNTB Corporation. *Gary/Chicago Airport Master Plan Update*. November 2001.

EXHIBIT 2-6
GARY/CHICAGO INTERNATIONAL AIRPORT
Declared Distances

	Runway 12 (feet)	Runway 30 (feet)
TORA	8,900	8,900
TODA	8,900	8,900
ASDA	8,354	8,900
LDA	8,354	8,354

TORA – Take off runway available
TODA – Takeoff distance available
ASDA – Accelerate stop distance available
LDA – Landing distance available

Source: 2001 Airport Master Plan Update, November 2001, HNTB.

2.2.2.2 Recommended Runway Length Improvements

The 2001 Airport Master Plan identified a range of runway lengths for aircraft at maximum takeoff weight. To identify the most appropriate runway length, the current and forecast users of the Gary/Chicago International Airport at anticipated loads and nonstop service have been examined. The Gary/Chicago International Airport marketing includes efforts to attract carriers that generally operate narrow-body large jet aircraft, many with high load factors. Southeast Airlines has initiated service to Florida using MD-80 aircraft. This service is representative of the assumptions that were made during the 2001 Airport Master Plan process to identify the appropriate runway length to support critical operators at the airport. From Gary/Chicago International Airport, Florida destinations are 750-1,000 nautical miles and Las Vegas type destinations are about 1,500 nautical miles. These and numerous other high-demand business destinations fall within 750-1,500 mile trip length from Gary/Chicago International Airport. **Exhibit 2-7** shows required runway lengths for common aircraft being operated by carriers with a 90% load factor on a hot day on 750, 1,000 and 1,500 nautical mile trip lengths.

EXHIBIT 2-7
GARY/CHICAGO INTERNATIONAL AIRPORT
Common Narrow-body Aircraft to Potential Destinations from GARY/CHICAGO INTERNATIONAL AIRPORT

Aircraft	Runway Length (ft) 750 NM Trip	Runway Length (ft) 1,000 NM Trip	Runway Length (ft) 1,500 NM Trip
727-200 (JT8D-9)	8,100	8,800	10,300
737 –200 Advanced (JT8D-15/15A)	6,400	7,100	8,900
MD 82 and 88	6,800	7,200	Outside 90% load range
DC9-32	7,300	8,000	Outside 90% load range
717 (18,500 lbs. Thrust)	5,800	6,500	7,300

Source: Boeing Associated Projects Website, Airport Technology, Airplane Planning Manual and Product Brochures for Specific Aircraft Products, Internet Web Site boeing.com/assocproducts/aircompat/plan_manuals.html, July 2002.

As shown in Exhibit 2-7 a minimum of 8,100 to 8,800 feet and up to 8,900 feet would provide air carriers the opportunity to maximize the utility of their aircraft at Gary/Chicago International Airport while providing flexibility in the type of aircraft the carrier could operate from the airport. In addition to passenger air service, Gary/Chicago International Airport also serves air cargo operators. Examining the DC8-72F, one of the common and more demanding air cargo aircraft, it requires 9,000 feet to operate without load restrictions.

2.2.2.3 Airside Improvements to Provide Additional Runway Length on Runway 12-30

It is proposed that the existing Runway 12-30 would be extended to 8,900 feet in order to provide additional runway length so that the current[17] and future air carrier and cargo operators may operate Airport Reference Code C-III aircraft within a 1,500-mile range from Gary/Chicago International Airport efficiently with the appropriate load factors to the destinations desired. This improvement will increase the margin of safety for users of the airport, while providing a facility that effectively and efficiently meets the demands of the existing users and the forecast low-growth activity. Although the existing runway length is capable of accommodating B727-200 and other similar aircraft on short-haul routes and/or at lower takeoff weights, the required runway length for a given aircraft on a given day is determined by a combination of factors, including specific aircraft variant type, temperature, engine type, and takeoff weight. Accordingly, there are many instances when a runway length of 7,000 feet at the Gary/Chicago International Airport would limit the load for some existing and future users of the facility.

The proposed improvements described in this section to provide additional runway length on Runway 12-30 are to occur simultaneously with and require accomplishment of the improvements for Runway 12-30 to conform to FAA standards (safety area improvements), described earlier in this chapter.

2.2.2.3.1 Acquire Land

All of the fee simple acquisition area needed for the full extension of Runway 12-30 will already have occurred as a part of the land assembly to conform to FAA standards. The land acquisition needed for all the proposed improvements are summarized later in this chapter. As a part of providing additional length on Runway 12-30, the runway protection zone (RPZ) is proposed to be cleared of incompatible objects and activities to meet FAA criteria. A fuel tank from a fuel storage facility on the west side of Cline Avenue would encroach on the Runway 12 RPZ with an extension to Runway 12. This fuel tank would need to be relocated or removed to meet FAA criteria for the Runway 12 RPZ. At this time, there are no plans to purchase the property on which the tank is located; instead, an easement or use agreement may be appropriate to provide for the removal of the tank

[17] See Section 2.2.2.1

and to allow the airport control over the acreage located west of Cline Avenue but within the Runway 12 RPZ.

2.2.2.3.2 Extend Runway 12 to 8,900 feet with a width of 150 feet

To provide 8,900 feet on Runway 12-30 an approximately 1,354-foot extension to the northwest on Runway 12 is proposed in conjunction with the approximately 546-foot extension to Runway 12 to provide safety areas conforming to FAA standards (total extension 1,900 feet). The extension of Runway 12 as proposed to 8,900 feet would occur after the acquisition of the necessary property for the safety area and extension improvements, the burial of the power lines and the relocation of the railroad tracks to provide safety areas that conform to FAA standards.

2.2.2.3.3 Relocate Runway 12-30 Navaids

In addition to the relocation of the Runway 30 localizer to conform to FAA standards as described earlier in this chapter, the PAPI-4 and REILs on the Runway 12 end would also have to be relocated to serve the end of the extended Runway 12.

2.2.2.3.4 Extend Taxiway A

To support the extension of Runway 12, Taxiway A would need to be extended to the new runway end. The extended parallel taxiway would be constructed with a 400-foot runway centerline to taxiway centerline separation, although the FAA has granted a modification of design standards for the existing portion of Taxiway A to remain separated by 392 feet runway centerline to taxiway centerline.

2.2.2.3.5 Construct Deicing/Hold Pads on Taxiway A at Runway 12-30

The development plan recommends the construction of deicing/hold pads at the end of extended Taxiway A at Runway 12 and at the end of the existing Taxiway A at Runway 30. Adding two deicing/hold pads in these locations would allow an aircraft to be deiced immediately before takeoff. Also, the pads would allow a delayed departing aircraft to pull off on the hold pad, permitting other aircraft to access the departure end of the runway in order to minimize delays. Further study would need to occur before development of the additional deicing/hold pads to determine if only one of these additional deicing pads will suffice or if both would need to be developed. This study would occur at the time the runway extension to 8,900 feet is designed.

2.2.2.3.6 Develop Two High-Speed Exit Taxiways

Two high-speed taxiways are proposed for development at the time of the runway extension. The taxiways are envisioned to serve aircraft landing on Runway 12 to access

parallel Taxiway A and to eventually serve aircraft landing on Runway 30 that use the new terminal area. Development of high-speed exit taxiways would increase the efficiency of operation and margin of safety of the airport.

2.2.3 Need for Expansion of Existing Terminal

The existing terminal building and apron at Gary/Chicago International Airport will not meet the demands of the projected airline users at the airport. The purpose of the Proposed Action is to provide a passenger terminal to meet the needs of airline passengers that are forecast to be attracted to the Gary/Chicago International Airport. There is a need to expand the terminal building size to meet the needs of the Gary/Chicago International Airport airline passengers.

2.2.3.1 Forecast of Passenger and Aircraft Activity

Based on the low case operations forecast, the anticipated passenger and aircraft activity is summarized in **Exhibit 2-8**.

EXHIBIT 2-8
GARY/CHICAGO INTERNATIONAL AIRPORT
Low Case Forecast – Passenger & Aircraft Activity
(No Commuters)

	Pro Forma 1997*	2005	2010	2020
Enplanements				
Annual (ANNEP)	2,011	57,680	68,175	95,242
Peak Hour Enplanements (PHEP)	124	149	149	149
Peak Hour Originations (PHOP)	124	149	149	149
Deplanements				
Annual (ANNDP)	2,011	57,680	68,175	95,242
Peak Hour Departures (PHDP)	124	149	149	149
Peak Hour Terminations (PHTP)	124	149	149	149
Peak Hour Deplanements – International (PHDP Intl.)	0	0	0	0
Total Passengers				
Annual	4,022	115,360	136,350	190,484
Peak Hour Passengers (PHP)	248	298	298	298
Aircraft Operations				
Annual Operations (air carrier only)				
Peak Hour Operations		(a)		
Peak Hour Arrivals				
Peak Hour Departures				
DEP/GATE REQUIREMENTS (b)	1	2	2	2

(a) Due to the low level of operations resulting in the low passenger numbers presented above, peaking activity tables were not created for aircraft operations. Based on data presented in 2001 Airport Master Plan, the 1,279 annual passenger aircraft departures forecasted in 2020 represents an average of only 3.5 daily departures over the entire year. No hourly periods with more than one departure are anticipated.

(b) Requirements assume 1 jet position = 1 departure lounge.

*Actual 2000 enplanements – 24,588 passengers, 2001 enplanements – 21,194 passengers, 2002 enplanements – 8,275 passengers per Airport and FAA records; 2003 enplanements estimated 1,500 passengers (final count not yet available)

Source: Aerofinity, 2004 based upon data from 2001 Airport Master Plan Update, November 2001, HNTB.

2.2.3.2 Existing Landside Facilities (Terminal Building/Apron) Shortcomings

The existing passenger terminal building and associated apron is located north of Runway 12-30. **Exhibit 2-9** (below) shows the terminal building congestion during a Southeast Airlines arrival/departure sequence. The existing terminal building is a one-level structure which houses airline ticket counter and related airline office space, a passenger waiting area, a baggage claim area, a concessions area, and a building mechanical area. The building was originally constructed in 1982 and underwent a major renovation in 1999. Chapter 1, Introduction, of this EIS, includes a layout of the terminal building, and **Exhibit 2-10** lists the areas by function.

EXHIBIT 2-9
Terminal Building Congestion During Southeast Airlines Arrival/Departure Sequence

Source: Gary/Chicago Airport Authority Staff, March 29, 2004.

EXHIBIT 2-10
GARY/CHICAGO INTERNATIONAL AIRPORT
Passenger Terminal Building – Facility Requirements Summary (Low Case)

Space	Existing (a)(b)		2005		2010		2020	
	LF	SF	LF	SF	LF	SF	LF	SF
Airline Functions								
Ticket Counter (SF)		602		535		535		535
Ticket Counter (LF)	49		52		52		52	
Ticket Counter Queuing		1,027		1,043		1,043		1,043
Airline Ticket Office		981		1,043		1,043		1,043
Departure Lounge		1,233		2,420		2,420		2,420
Baggage Claim (SF)		323		3,554		3,554		3,554
Baggage Claim (LF)	19		160		160		160	
Baggage Service		855		224		224		224
Outbound Baggage		0		2,347		2,347		2,347
Inbound Baggage		0		2,922		2,922		2,922
Operations/Maintenance/Storage		0		577		682		953
Subtotal Airline Functions		5,021		14,665		14,770		15,041
Concessions Space								
Food/Beverage		747		577		682		953
News/Gift/Sundry		0		174		205		286
Rental Car		540		116		137		191
Other Revenue		0		116		137		191
Subtotal Concessions Space		1,287		983		1,161		1,621
Secure Public Area								
Security		206		480		480		480
Circulation		0		2,800		2,800		2,800
Restrooms		0		894		894		894
Subtotal Secure Public Area		206		4,174		4,174		4,174
Non-Secure Public Area								
Circulation – Ticketing		4,002		1,043		1,043		1,043
Circulation – Baggage Claim		0		2,306		2,306		2,306
Circulation – General		0		1,731		2,046		2,858
Restrooms		800		894		894		894
Other		0		289		341		477
Subtotal Non-Secure Public Area		4,802		6,263		6,630		7,578
Non-Public Area								
Airport Administration		4,213		4,213		4,213		4,213
Maintenance		0		353		360		380
Mechanical/Electrical/Building Systems		532		4,580		4,679		4,932
Miscellaneous		0		353		360		380
Subtotal Non-Public Area		4,745		9,499		9,612		9,905
Total All Areas		16,061		35,584		36,347		38,319

(a) Existing Airline Ticket Office includes Operations and Outbound Baggage: Existing Circulation includes Ticketing, Baggage, and General Circulation; Existing News/Gift/Sundry combined with Food/Beverage.

(b) Current needs are not being met by existing facilities. Expansion of existing terminal building (up to 15,000 square feet) and apron (up to 1,250 square yards) will occur in 2004-2005 to meet immediate needs associated with increased security and baggage handling requirements, as well as to relieve crowded conditions resulting from operational demands that are unique to Southeast Airlines low-fare, quick turn-around flights.

Source: Aerofinity, 2004 based on data from 2001 Airport Master Plan Update, November 2001, HNTB.

The terminal has a single departure lounge, with three aircraft gates, and a separate entryway for arriving passengers. There is one passenger loading bridge; exit and entry to other aircraft gates is provided via stairs. The facility is capable of housing two or three regional airlines based on counter space, with facilities for ticketing, baggage and passenger screening. The building now houses Southeast Airlines. It also houses Enterprise and Hertz Rent-A-Car.

The concrete aircraft parking positions on the terminal apron were completed in the late 1990s. A 4,800 square-yard deicing pad, with facilities for capturing used glycol, has been built directly in front of the terminal. The deicing pad has two parking positions that allow for simultaneous deicing of aircraft.

The terminal is served by a single-level roadway with public, surface parking lots located to the north of, and adjacent to, the terminal building as shown in Chapter 1, Introduction, of this EIS. An 800-space automobile parking lot is located directly in front of the terminal building. This automobile parking lot is scheduled to be expanded by 570 additional spaces to meet immediate needs by passengers using Southeast Airlines.

In 2004-2005, the terminal building and apron are to undergo expansions to provide the area needed to meet increased security requirements and passenger flow demands. This expansion has independent utility and will be environmentally reviewed outside of this EIS.

Exhibit 2-10 translates the forecast enplaned passengers into typical terminal building facility requirements. Additional terminal building facilities would be needed to accommodate the forecast level of enplaned passengers, which would also aid the airport in supporting any diversions per their agreement with United Airlines. The total estimated square footage for the terminal building shown is Exhibit 2-10 is in addition to the added 15,000 square feet of space that is proposed to be added in 2004-2005. The requirements for this expansion are based upon factors that were not known (new security requirements and unique requirements of a low-cost, quick-turnaround service such as Southeast Airlines) at the time that the 2001 Airport Master Plan projected square footage requirements for the terminal.

2.2.3.3 Passenger Terminal Expansion at Existing Terminal Site

The 2001 Airport Master Plan recommends expanding the terminal building and apron to meet the demands of existing and new passenger service, as well as the traveling public. In addition, the Gary/Chicago International Airport has a service agreement with United Airlines that allows United to divert aircraft to the Gary/Chicago International Airport and use the terminal facilities.

Changes in security and activity levels requirements have required additional square footage immediately in the terminal building. Approximately 2,000 square feet of additional terminal space is needed immediately to replace the space utilized to meet the new security requirements. This portion of the terminal expansion has been environmentally reviewed (categorical exclusion determination made) outside of this environmental review because it had independent utility and was not dependent on the low case forecast utilized in the 2001 Airport Master Plan. Also, since Southeast Airlines began operations in February 2004, it has become apparent that there is an immediate need for additional space to relieve crowded conditions. Up to 15,000 square feet of terminal area is proposed to be constructed to meet the combined needs of the security requirements and immediate passenger flow improvements.

Terminal Building Expansion

The 2001 Airport Master Plan proposed that the existing terminal building be expanded toward the east to accommodate future facilities. The immediate expansion project that has independent utility is to occur to the east and will use most of the available expansion area, so long as a 1-story building continues to be used as the airport terminal. For the Proposed Action, the terminal building expansion will either be an addition of a second story to the east or 1-story expansion both to the east and to west.

The Proposed Action addresses the potential to provide approximately an additional 22,000 square feet of space for existing and prospective airport tenants in addition to the 2004-2005 expansion. The total size of the terminal building following the 2004-2005 expansion and the Proposed Action would be 53,000 square feet. This future expansion would also include the addition of one aircraft gate to the expanded lounge area, for a total of four gates at the Gary/Chicago International Airport.[18] Expanding the current facility would allow it to adequately serve the expected demand in the short-term; however, due to its constrained location, the current facility cannot be expanded to meet the potential passenger demand, which may occur beyond the 20-year baseline forecast.[19] Sufficient room is under study at the existing terminal building site for the total square footage for the future terminal building to be accomplished either as a 1-story or 2-story facility. With an expansion to the west, the terminal building may either encompass the

[18] Gary/Chicago Airport Authority, prepared by HNTB Corporation. *Gary/Chicago Airport Master Plan Update*. Chapter 7. November 2001.

[19] Gary/Chicago Airport Authority, prepared by HNTB Corporation. *Gary/Chicago Airport Master Plan Update*. Chapter 7. November 2001.

current ARFF facility or require its relocation. The ARFF building relocation is possible but not expected to occur at this time nor is it expected to occur in the foreseeable future.

Expansion of Terminal Apron

An expansion of the associated apron area to the east identified as a part of the 2001 Airport Master Plan was needed immediately to accommodate efficient movement of existing aircraft using the terminal facility; it is being accomplished in phases with the first phase completed to allow for the installation of the jet bridge. This apron expansion has been environmentally assessed outside of this environmental review because it had independent utility and was not dependent on the low case forecast utilized in the 2001 Airport Master Plan. The apron expansion was found to be eligible for a categorical exclusion.

As a part of the 2004-2005 terminal improvements, an additional 1,250 square yards of apron is needed to the east. This project has independent utility and is to be environmentally reviewed outside of this EIS.

As part of this EIS analysis, it is proposed that the existing apron between Taxiways C and A2 be expanded to create an additional 5,500 square yards of terminal apron space. This expansion would allow aircraft to taxi behind aircraft parked at the terminal building, allowing for a free-moving terminal area.[20]

2.2.4 Need for Acquiring and/or Reserving a Site for New Passenger Terminal and Air Cargo Facility

The need for a new passenger terminal and air cargo facilities is considered possible in the foreseeable future but likely beyond the 20-year low case forecast. Major terminal improvement programs require long lead times for implementation; however, once demand exceeds capacity, an immediate response is needed. The purpose of the Proposed Action is to select site(s) for a possible future passenger terminal and/or future cargo facility to serve the users of the Gary/Chicago International Airport in order to reserve these areas for potential long-term aviation uses. There is a need to acquire/reserve and remediate as necessary, although most of the land identified will be acquired and remediated as part of the rail relocation and runway improvement program, site areas designated for future aviation related uses for the Gary/Chicago International Airport. It is recognized that the purpose and need for the actual development of these more-extensive infrastructure has not been demonstrated at this time and a separate environmental review will be needed at the time, if the need is demonstrated.

[20] Gary/Chicago Airport Authority, prepared by HNTB Corporation. *Gary/Chicago Airport Master Plan Update*. Chapter 7. November 2001.

2.2.4.1 Lack of Adequate Site for New Passenger Terminal

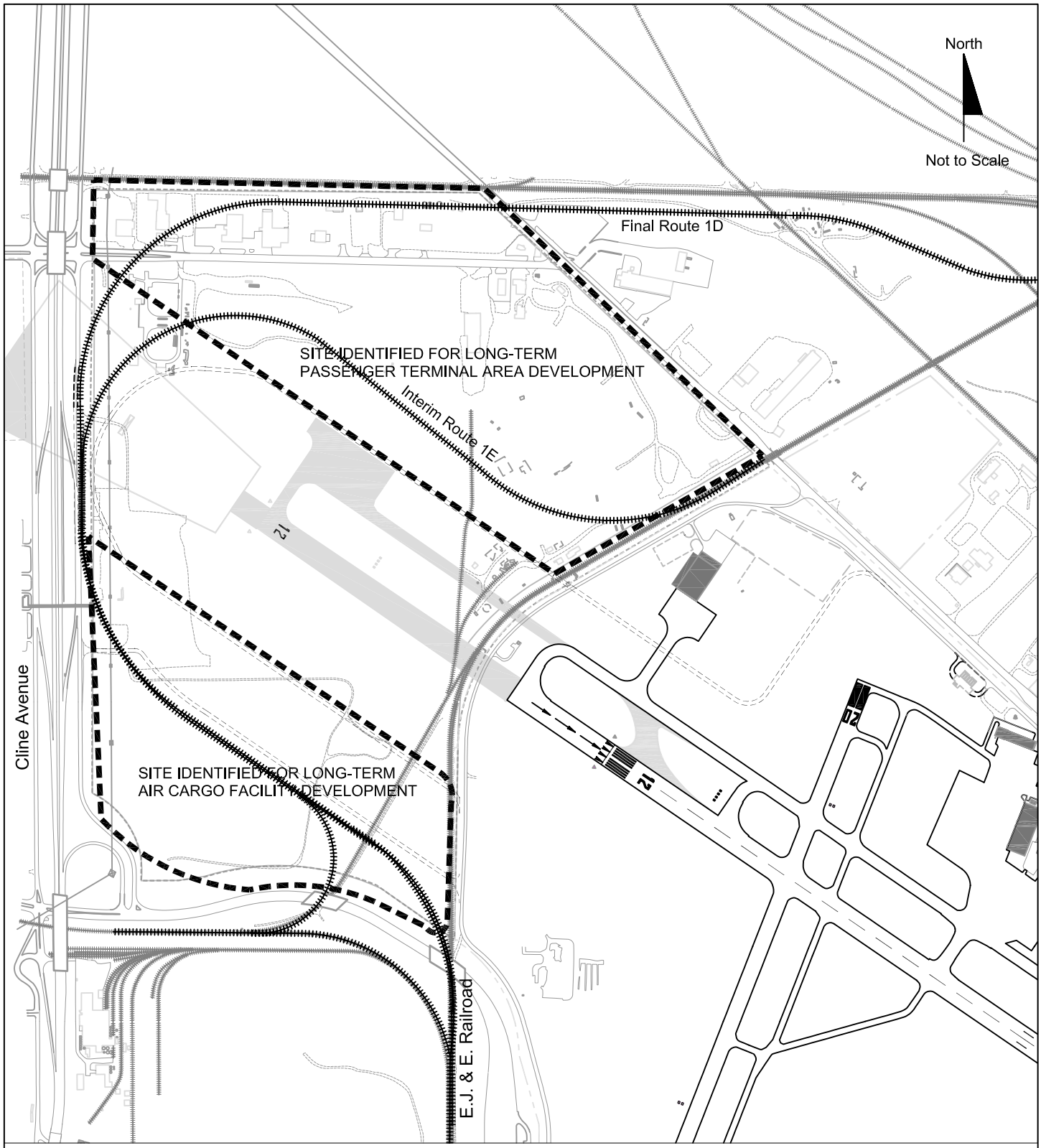
In their January 3, 2000 letter, in addition to approving the low case forecasts the FAA recognized the following:

> *"…the airport authority is currently negotiating with carriers for additional operations. Should at a future date the assumptions used to generate the mid or high case forecast (of the master plan) be confirmed as being imminent, we will reevaluate our approval to include the appropriate forecast. This does not mean that you cannot plan infrastructure for the mid or high case forecasts. However, it does mean that at this time there does not appear to be a purpose and need for more extensive infrastructure at those higher levels of activity."*[21]

The expansion of the existing terminal building described above is to accommodate the low case forecast. Gary/Chicago International Airport would outgrow the existing terminal area site with growth occurring beyond the low case forecast rate due to its constrained location. To plan the infrastructure for the mid and high forecast the 2001 Airport Master Plan identified the need to reserve a site for new passenger terminal facilities. Planning, acquiring and/or reserving, and remediating, as necessary, this site enables the Airport Authority to ensure that development in the short term will be compatible with the long-term plans for the Gary/Chicago International Airport. The actual development of the site would be defined if and as the need arises, and this future development would be subject to a separate environmental review at that time.

Exhibit 2-11 illustrates the area reserved for future passenger terminal facilities as a part of the Gary/Chicago 2001 Airport Layout Plan. Various potential sites were examined in the 2001 Airport Master Plan update and the location shown on Exhibit 2-11 was identified as the best use of space. The other potential sites are discussed in the Alternatives Analysis, but were eliminated due to constrained size, access limitations, floodplains/wetlands and/or hazardous waste. The EIS documentation process includes a site evaluation of these areas, allowing the Gary/Chicago Airport Authority to proactively acquire and/or reserve these areas for potential future aviation-related uses. Approximately 25 additional acres of land acquisition would be required to reserve this area (6 landowners with 1 additional business.) It should be noted that the EJ&E Railway relocation includes an interim phased route, Route 1E, which conflicts with the long-term use for this area as a passenger terminal facility. Two issues are expected to determine whether the phased re-routing of the EJ&E Railway occurs or not: funding availability and passenger growth, which requires the development of new passenger terminal facilities.

[21] Federal Aviation Administration, Airport District Office – Pené A. Beversdorf, Assistant Manager; Letter to Nicholas L. Nesta, Project Manager, HNTB Corporation, January 3, 2000.



Source: Aerofinity, 2004 from Gary/Chicago Mater Plan Update, November 2001, HNTB

Gary/Chicago International Airport
Chicago's Best Approach!

EXHIBIT 2-11
Sites for Future Passenger Terminal and Air Cargo Facility Development

April 8, 2004

2.2.4.2 Lack of Adequate Site for New Air Cargo Facility

Air freight loaded and unloaded in Gary/Chicago International Airport has ranged from 750,000 to just over 2,100,000 pounds, or 375 to 1,076 tons, from 1994 to 2003[22]. Peak years for air cargo are as a result of the automotive industry's need for cargo distribution to meet just-in-time inventory requirements.[23]

The low case air freight forecast from the 2001 Airport Master Plan update is shown in **Exhibit 2-12.** It used the national average annual growth rate of 6 percent as forecast by the FAA in its Aerospace Forecast FY 1999-2010 and projected it for Gary/Chicago International Airport. This results in the projected total air freight handled at Gary/Chicago International Airport to increase from 500 tons in 1997 to 2,549 in 2020.

EXHIBIT 2-12
GARY/CHICAGO INTERNATIONAL AIRPORT
Projected Inbound and Outbound Air Freight Tonnage
Low Case

Calendar Year	Current Cargo Base (a)	Passenger Carriers (b)	Integrated Carriers (c)	Total Tons
		Historical		
1997	500	-	-	500
2003 (d)	1,076	-	-	1,076
		Projected		
2005 as est in 1997	797	388	-	1,184
2010	1,066	458	-	1,524
2020	1,910	640	-	2,549

(a) Forecast from 1997 based on estimated volume of 750,000-1,500,000 pounds for years 1994-1998 as provided by FBO operator at Gary, with 1994 estimated peak for that period. Annual increase estimated at 6 percent (air cargo RTM growth rate projected in FAA Aerospace Forecast FY 1999-2010. (Last estimate based upon 1997 data; this information was not compiled in 2000 to provide actual information.)
(b) Based on operations in Table 3.23 and estimated 0.25 tons per passenger air carrier operation. (Last estimate based upon 1997 data; this information was not compiled in 2000 to provide actual information.)
(c) No integrated carriers assumed for low case.
(d) Updated 2003 cargo volume of 1,076 tons reported to Gary/Chicago Airport Authority by Gary Jet Center.

Sources: Aerofinity, 2004 as noted and 2001 Airport Master Plan Update, November 2001, HNTB.

The most recent FAA Aerospace Forecasts 2003-2014 forecasts an average annual growth rate of 5 percent for that 12-year period, a slight decrease from the 2001 Airport Master Plan forecasts, but resulting in similar facility needs for the type of cargo activity at the Gary/Chicago International Airport. As with the low case forecast for passenger growth, the existing airport facilities could accommodate this sort of moderate growth in cargo activity; however, again the Gary/Chicago Airport Authority has deemed it prudent to plan the infrastructure for the mid and high forecast growth potential for cargo activities as the current cargo area is too constrained to accommodate

[22] In 2003, the Gary Jet Center reported that 2,152,944 pounds, or 1,076 tons, of freight was loaded and unloaded at the airport.
[23] Gary/Chicago Airport Authority, prepared by HNTB Corporation. *Gary/Chicago Airport Master Plan Update*. Chapter 3. November 2001. With 2004 confirmation from Gary/Chicago Airport Authority.

those activity levels. Accordingly, the 2001 Airport Master Plan identified the need to acquire and/or reserve a site for new air cargo facilities. Planning, acquiring and/or reserving, and remediating, as necessary, this site enables the Gary/Chicago Airport Authority to ensure that development in the short-term will be compatible with the long-term plans for the Gary/Chicago International Airport. The actual development of the site would be defined if and as the need arises, and this development would be subject to a separate environmental review at that time.

Exhibit 2-11 illustrates the area reserved for future air cargo facilities as a part of the Gary/Chicago 2001 Airport Layout Plan. Various potential sites were examined in the Airport Master Plan update and the location shown on Exhibit 2-11 was identified as the best use of space. The other potential sites are discussed in the Alternatives Analysis, but were discarded due to constrained size, access limitations, floodplains/wetlands and/or hazardous waste. The EIS documentation process will include a site evaluation of the land to be acquired, allowing the Gary/Chicago Airport Authority to proactively reserve these areas for future aviation-related uses.

The 2001 Airport Master Plan identifies the need for new passenger terminal and air cargo facility development in the foreseeable future but likely beyond the 20-year low case forecast.[24] The areas adjacent to the extended runway are identified in the 2001 Airport Master Plan to accommodate these new development areas as the best use of space after reviewing various potential locations. The other potential locations are discussed in more detail in the Alternatives Analysis, but were discarded due to constrained size, access limitations, floodplains/wetlands, and/or hazardous wastes and debris. An environmental review is included in this EIS to allow for the acquisition of these areas so that the Gary/Chicago International Airport can meet the future demands for development if and as they may occur. This environmental review will only allow for identification, acquisition and remediation of the site. Prior to any development occurring on the site, a purpose and need will need to be presented for that development based on actual tenant needs, and an environmental decision document will be required.

2.2.4.3 Acquire and/or Reserve Site for Development of New Passenger Terminal Area with Associated Uses

On the 2001 Airport Layout Plan, a new terminal site has been identified on the northwest side of the airfield. Locating the terminal in the northwest quadrant would provide easy highway access from Interstate 90 (Chicago Skyway) and Cline Avenue, and the flexibility for future airport expansion. Additionally, relocating the terminal to this area would allow the Gary/Chicago International Airport to expand passenger parking outside the terminal and airport concessions inside the terminal. Although most of this property will require acquisition for the rail relocation or runway improvements, the acquisition of the remaining approximately 25 acres (with six

[24] Gary/Chicago Airport Authority, prepared by HNTB Corporation. *Gary/Chicago Airport Master Plan Update*. Chapter 7. November 2001.

landowners) out of approximately 123 acres as shown in Exhibit 2-11 has been reserved for long-term passenger terminal area development. Some of this area, especially that north of Chicago Avenue, is used for truck terminal or truck sales/service activities and there are no homes in this area. The long lead-time required for major terminal development projects has led to the planning and site review of this area, with acquisition and remediation of contaminated land possible.

2.2.4.4 Acquire and/or Reserve Site for Development of New Cargo Area

The current cargo area cannot be expanded to meet the forecast long-term demand. This need is not expected in the near-term; however, the long lead-time necessary for major facility development has led the Gary/Chicago International Airport to support environmental review of the site at this time. Therefore, a new cargo area site has been identified south of the extended Runway 12. The acquisition of this land was addressed earlier in this chapter, since this site would be located on land proposed to be acquired for railroad relocation. The same landowners hold both this area and the areas located immediately off the end of the existing runway. The environmental impacts of acquiring and reserving a new cargo area with associated land uses will be studied in this EIS to identify remediation requirements of holding this site for future air cargo development. Prior to any development occurring on the site, a purpose and need will need to be presented for that development based on actual tenant needs and environmental decision document will be required.

2.2.5 Land Acquisition Summary

The land acquisition discussions from various sections within this chapter are summarized in **Exhibit 2-13**. In addition to land acquisition to the northwest of the airport for runway safety area improvements (including railroad and perimeter road relocation), land acquisition is also needed for positive control of the runway protection zone on the southeast end of Runway 12-30[25], extension of Runway 12-30 to the northwest[26], and potential long-term development of a new passenger terminal area with associated uses[27]. The site area recommended by the Gary/Chicago Airport Authority for potential development of a new cargo area[28] is included in the initial land acquisition described below.

[25] Additional details in Section 2.2.1.2.11
[26] Additional details in Section 2.2.2.3.1
[27] Additional details in Section 2.2.4.1
[28] Additional details in Section 2.2.4.2

Exhibit 2-13 GARY/CHICAGO INTERNATIONAL AIRPORT Land Acquisition Summary				
Overview	**Approximate Acres**	**Landowners**	**Homes**	**Purpose**
2.2.1.2.1	270	17	0	To Conform to Current FAA Standards (runway safety area)
2.2.1.2.12	20	47	42	Southeast Runway Protection Zone (RPZ)
2.2.2.3.1	-	-	-	Runway Extension (included above) *
2.2.4.1	25	6	0	Long-term Passenger Terminal Area
2.2.4.2	-	-	-	Long-term Cargo Area (included above)
Total	315	70	42	
*Requires easement or use agreement over 3 acres to remove one tank located in Runway 12 future RPZ.				

2.3 SUMMARY OF PURPOSE AND NEED

The following is a summary of the analysis done to examine the needs of existing and future users of the Gary/Chicago International Airport and determine the purpose for Proposed Actions by the Gary/Chicago Airport Authority and the Federal Aviation Administration.

- The existing Runway 12-30 does not meet the FAA's recent national mandate for runway safety areas to comply with the standards outlined in *FAA Advisory Circular 150-5300-13.* The purpose of the Proposed Action is to comply with current safety standards on existing Runway 12-30. There is a need to improve the existing runway to increase the operating margin of safety and comply with FAA standards.

- The current and future users in the area of air carrier and cargo operators need additional runway length to operate efficiently and safely with the appropriate load factors and to the destinations desired. The purpose of the Proposed Action is to provide takeoff and landing capabilities for cost-effective travel by Airport Reference Code C-III aircraft within a 1,500-mile range from the Gary/Chicago International Airport. There is the need to provide additional runway length to meet the requirements of current and future users.

- The existing terminal building and apron at Gary/Chicago International Airport will not meet the demands of the projected airline users at the airport. The purpose of the Proposed Action is to provide a passenger terminal to meet the needs of airline passengers that may be attracted to the Gary/Chicago International Airport based on the low case forecast. There is a need to expand the terminal building and apron sizes to meet the needs of the Gary/Chicago International Airport airline passengers.

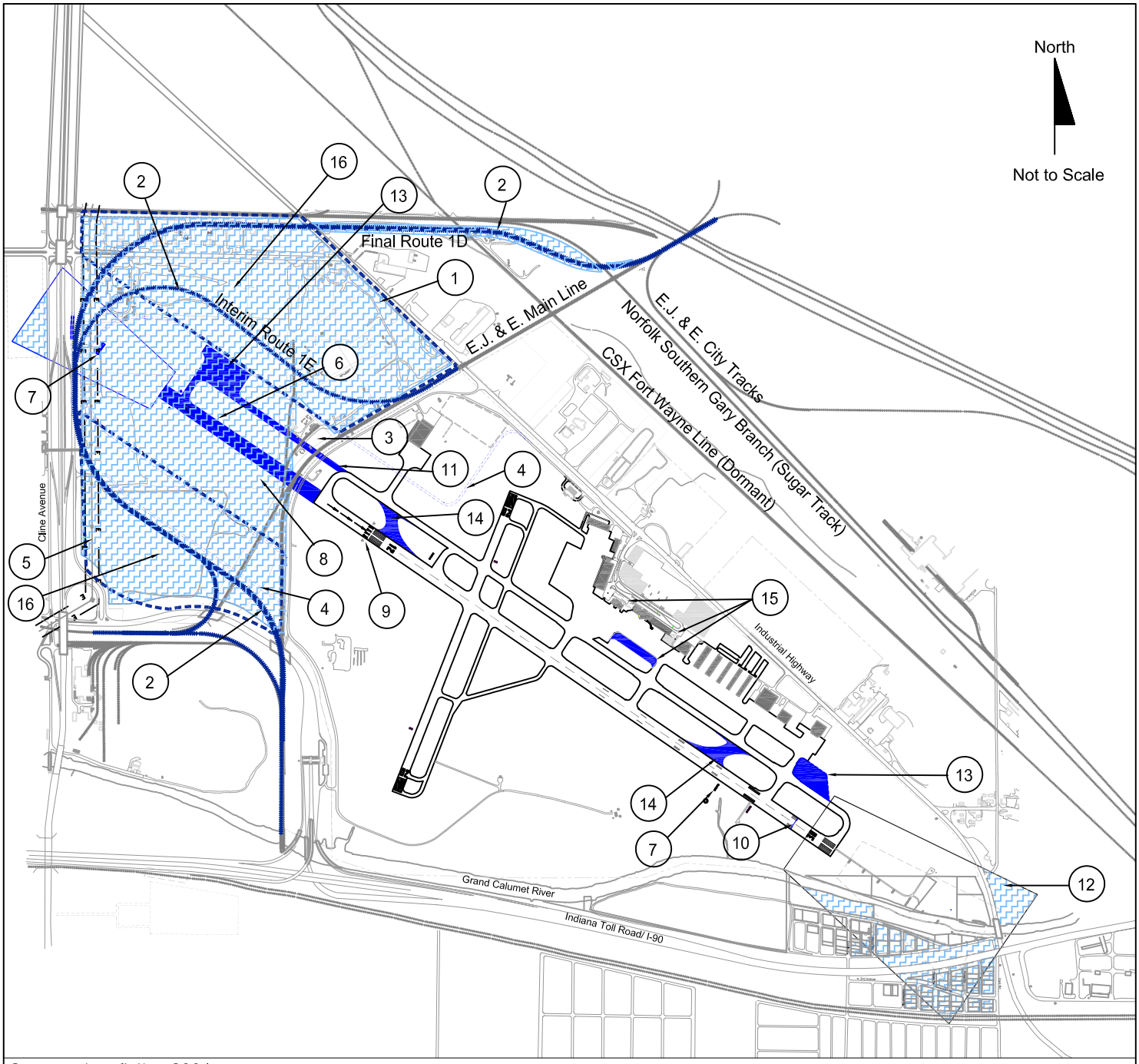
- The need for a new passenger terminal and air cargo facilities is considered possible in the foreseeable future. Major terminal improvement programs require long lead times for implementation; however, once demand exceeds capacity, an immediate response is needed. The purpose of the Proposed Action is to select site(s) for a future passenger terminal and/or future cargo facility to serve the users of the Gary/Chicago International Airport in order to reserve these areas for long-term aviation related users. There is a need to acquire/reserve and remediate as necessary site areas designated for future aviation related uses for the Gary/Chicago International Airport. (It is recognized that the purpose and need for the actual development of these more-extensive infrastructure has not been demonstrated at this time and a separate environmental review will be needed at the time the need is demonstrated.)

2.4 SUMMARY OF PROPOSED IMPROVEMENTS

In order for the Gary/Chicago International Airport to meet the needs of existing and future users and to conform to FAA standards, the Proposed Actions/improvements are being pursued by the Gary/Chicago Airport Authority and are numbered and summarized below (as also shown in **Exhibit 2-14**). However, all reasonable and feasible alternatives to the Proposed Action in addition to the No Action Alternative will be evaluated in Chapter 3, Alternatives, of this EIS.

- Improvements to existing Runway 12-30 to conform with current FAA Standards, the primary air carrier runway at the Gary/Chicago International Airport: 1) acquire land northwest of airport to allow for modifications to runway safety area (RSA); 2) relocate EJ&E Railway, with phased relocation; 3) modify ongoing cleanup activities for compatibility; 4) relocate airside perimeter roadway (including addition of southwest access road); 5) bury transmission line; 6) extend Runway 12 to the northwest (approximately 546 feet by 150 feet); 7) relocate Runway 12-30 navaids; 8) improve/grade RSA for Runway 12 (approximately 1,100 feet); 9) relocate Runway 12 threshold to remove prior displacement; 10) displace Runway 30 threshold using declared distance standards approximately 546 feet to the northwest to improve Runway 30 RSA; 11) extend parallel Taxiway A to new end of Runway 12; and 12) acquire land southeast of airport, located within or immediately adjacent to runway protection zone (RPZ). These airside improvements are needed to increase the margin of safety and to conform to FAA standards.

- Improvements to provide additional runway length on Runway 12-30 (proposed to occur simultaneously with and requiring accomplishment of the improvements to conform to FAA standards described above): acquire additional land or rights northwest of existing runway; extend Runway 12-30 to the northwest (up to approximately 1,354 feet by 150 feet); relocate Runway 12 navaids; extend parallel Taxiway A to new end of Runway 12; 13) construct deicing hold pads on Taxiway A at the ends of Runway 12 and Runway 30; 14) develop two high-speed exit taxiways; improve/grade extended Runway 12 safety area (approximately 1,100 feet); relocate Runway 12 threshold to end of extended runway pavement. These airside improvements will increase the



Source: Aerofinity, 2004

1	Acquire Land Northwest of Airport
2	Relocate E.J. & E. Railroad Interim and Final Routes (including modification to Cline Avenue frontage road)
3	Modify On-Going Cleanup
4	Relocate Airside Perimeter Road and Southwest Access Road
5	Bury Powerline
6	Extend Runway 12-30
7	Relocate Navaids for Runway 12-30
8	Interim Safety Area Improvements
9	Threshold Improvements Runway 12
10	Displace Runway 30 Threshold using Declared Distance
11	Extend Parallel Taxiway A
12	Acquire Land Southeast of Airport
13	Construct Deicing/ Hold Pads
14	Develop Two High Speed Exit Taxiways
15	Passenger Terminal Expansion at Existing Terminal Site
16	Analysis of Sites for Future Aviation-Related Uses-Passenger Terminal and Air Cargo Facilities

Gary/Chicago International Airport
Chicago's Best Approach!

EXHIBIT 2-14
Proposed Improvements

April 8, 2004

margin of safety for users of the Gary/Chicago International Airport and conform to FAA standards, while providing a facility that effectively and efficiently meets the demands of the existing users and forecast low-growth activity.

15) Expansion of existing passenger terminal and apron to accommodate projected demands, based upon the low case forecast, through the year 2020. For the Proposed Action, the terminal building expansion will either be an addition of a second story to the east or 1-story expansion both to the east and to west. With an expansion to the west, the terminal building may either encompass the current ARFF facility or require its relocation. The ARFF building relocation is possible but not expected to occur at this time nor is it expected to occur in the foreseeable future.

- 16) Analysis of sites adjacent to extended Runway 12-30 for aviation related development, including new passenger terminal and air cargo areas, in order to acquire and/or reserve these areas for the long-term. It is recognized that the purpose and need for the actual development of these more-extensive infrastructure has not been demonstrated at this time. Based upon the FAA's forecast review and given the long lead-time for major facility improvements, the Gary/Chicago Airport Authority has identified and reserved areas on their 2001 Airport Layout Plan to locate facilities to accommodate a higher case activity growth in the areas of air cargo and scheduled air service. The site analysis for these areas will be included in the EIS in order to consider the environmental impacts before the Gary/Chicago Airport Authority decides to acquire and/or reserve these areas for future aviation-related uses. The actual development of the site would be defined as the need arises and subject to a separate environmental review at that time.

2.5 PROPOSED FEDERAL ACTIONS

The Gary/Chicago Airport Authority seeks the FAA approval of select projects, which are near-term improvements at Gary/Chicago International Airport. For the most part, the FAA's Proposed Actions are based upon the continuing need to improve both the airfield and terminal area facilities at Gary/Chicago International Airport to conform to current FAA safety standards and to provide an effective and efficient facility for airport users. However, along with the Proposed Action sought by the Gary/Chicago Airport Authority, the FAA is considering alternatives such as no action, and other alternatives for accomplishing elements of the Gary/Chicago Airport Authority's development plan. The alternatives considered will be discussed in Chapter 3, Alternatives, of this EIS. In general the FAA is being requested to approve the proposed near-term improvements as identified on the 2001 Airport Layout Plan and 2003 Railroad Relocation Study (both are currently undergoing further development/refinement), revise the instrument approaches as needed to support these improvements, and to allow for the use of Federal funds or passenger facility charges for the implementation of these improvements.

- The specific proposed major Federal actions with regard to these development proposals are: Federal unconditional approval of the 2001 Airport Layout Plan. This includes an airspace

review/determination that the development proposed is appropriate from an airspace utilization and safety perspective based on aeronautical studies considering effects on the safe and efficient use of airspace by aircraft and the safety of persons and property on the ground conducted pursuant to the process under the standards and criteria of 14 CFR Parts 77 and 157 (49 U.S.C. Section 40103 and Section 40113, respectively).

- Federal environmental approval necessary to proceed with processing of an application for Federal funding for those development items qualifying under the Airport and Airway Improvement Act as amended, and recodified at 49 USC § 47101 et. Seq. and/or an approval to use Passenger Facility Charges.

- Federal environmental approval necessary for installation and/or relocation, certification and operation of navigation aids and revisions of associated Standard Instrument Approach Procedures (SIAP). Also, design, development, approval, and implementation of air traffic procedures consistent with the assumptions set forth in this document.

- FAA review and issuance of findings on requests for conversion of airport property, "Federally obligated land" for the non-aviation related development that is part of the Proposed Projects. Airport land becomes Federally obligated when an airport owner accepts FAA grants. Before conversion of airport property for non-aviation use, the FAA must grant a land release.

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